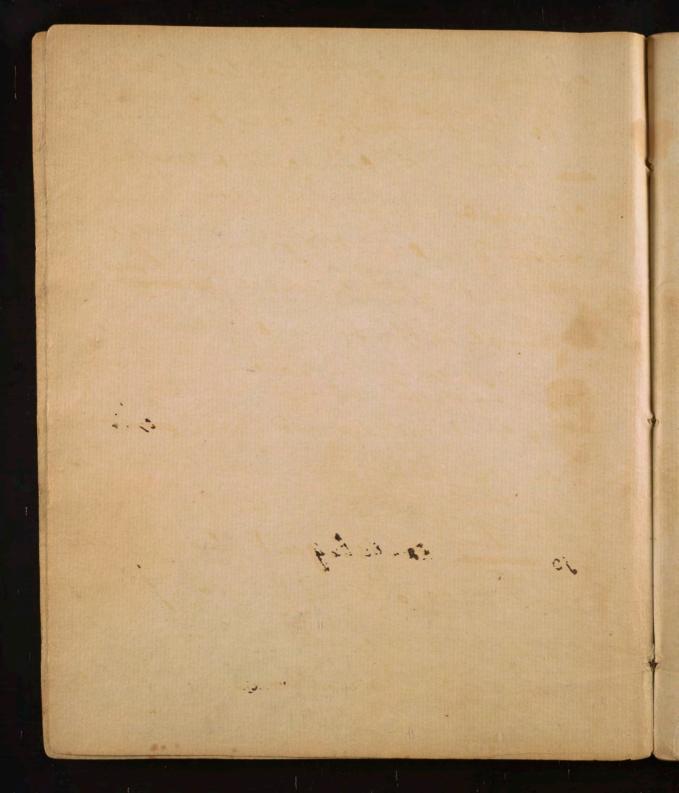
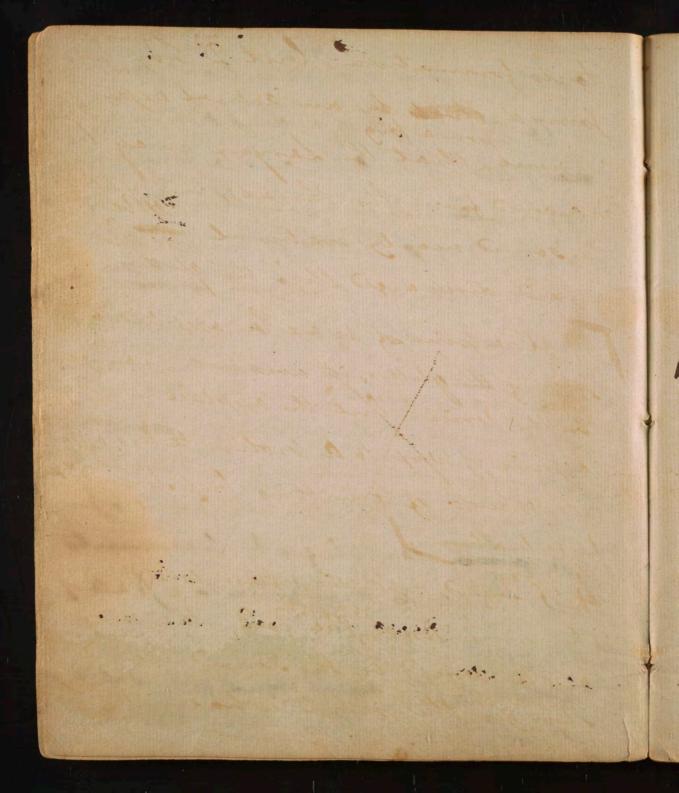


Voice - writing Jounds whispening 132 Speuch 195. linging - 193 Circulation of the 13 wod - 216.

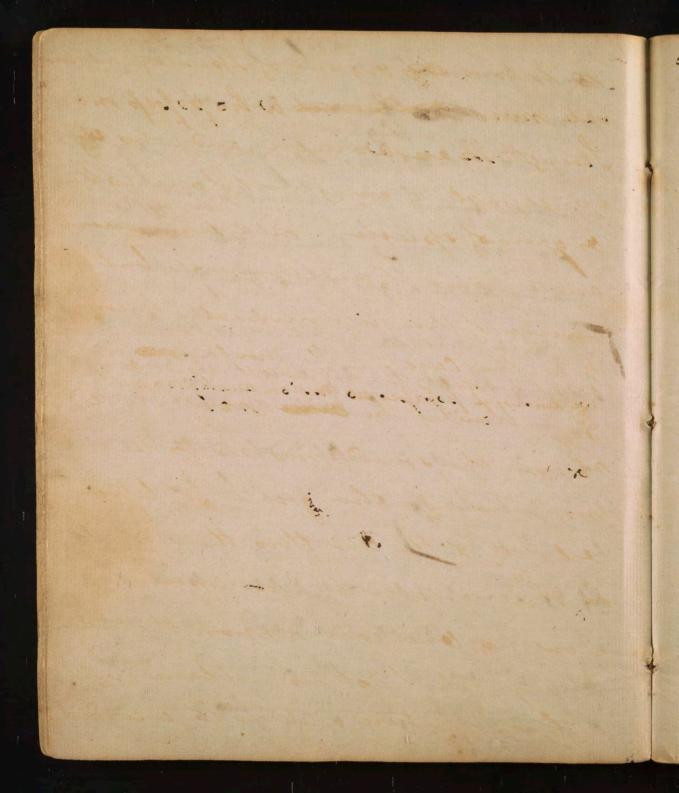


No they produce even the least oscillation 2 of the brings of a dead knownal be filled with hir, and a propouse afternuss made upon the thoras, or Sound is printled from the glottis, not unlike that which indies was natural to the same arrival inits the organs of the voice to be in a tense flate in a Dead exciting animal. If the Uvice depended up our presisting then certainty which is composed offs
The Largery which is composed offs
whany textilages & lignments, all liable to drawn into a state of exquisite and aute tension by the action of the ourseles muscles which more them, must be spintial

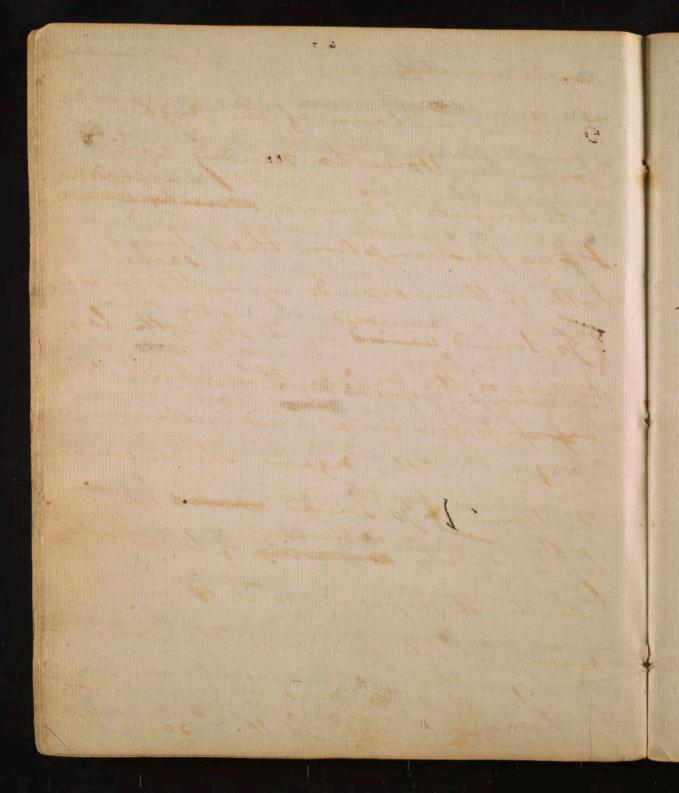


to its formation, but D' Troy has provid to by an actual experi-upon a big

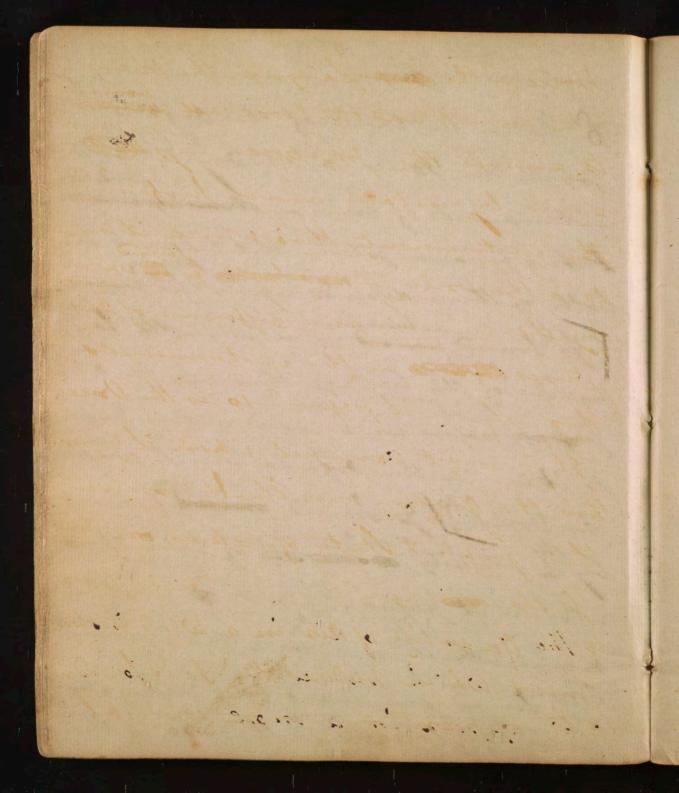
- ment, that the Laryout may be a sound marly natural often. -wards discharged this the glottis. -I4 If a pin of wax be applied to the lides of the gluttis, it does not change to the wire - first the application of a perior of what to a violin takes away its punds of comitting but downst & vibration! 4 If Sound depended upon cords, then the more tense the cood, - the more acute would be the Sound - and the Itunger the person who emitted the Sound, the more tense of louise would



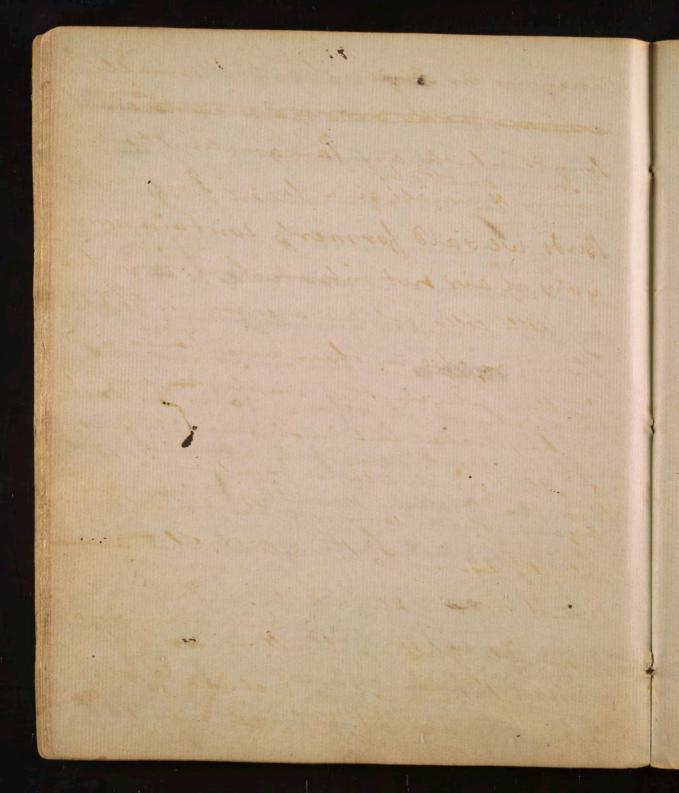
be the cords of the organs of Speech, - at this rate min who popula more Strungth the an Women, and who are capable of giving most tone to the organs of Speech, would have more aute voies than loomen - but the venuse of this is wiresally known to be the Case the boundary with which is the bound of the voice of the formation of the voice of the formation and high to a miss food. Observe the Sound produced to be in proportion to the greater or lepros belocity of the air thro the nostrilo, their greater or leper aperture, now no love can suppose the nortilo to have the liest usemblance in their Structure or lesso to a corded



instrument. -To The resemblance of the organs w. form the bone to sundry wind afforden instruments of emisie, structure Strong presum stron that Sund in both of them depends upon the cause. Its sound the lay the live of the papage this which air propos pupes in a wind instrument. to it is - In the organs which compose the void If some come energed the the solidity, or tension of levis this Eduich it papes -? so it is in the bryans which compose the voice? - Is Sound encreased by severburation as in the Conque Shell ? So is the



Voice; - the trop Languy - the Bharyang. - the countr and the brose all friend to answer this purpose. - plass varied by urtain unever Surfaces in the instruments this which it paper? To is the brie, - moderates Jo & varied the by the rumber and difference of afren - tures the instruments Ohro which it pepes? so is the Unice. - It is most powerful, when it pupes this the glottio; month & ware in their quatest State of extension. -- for the degree of Sound proportioned to the quantity of his in a wind instant = mint which produces it? To is found. This appresses in a more especial

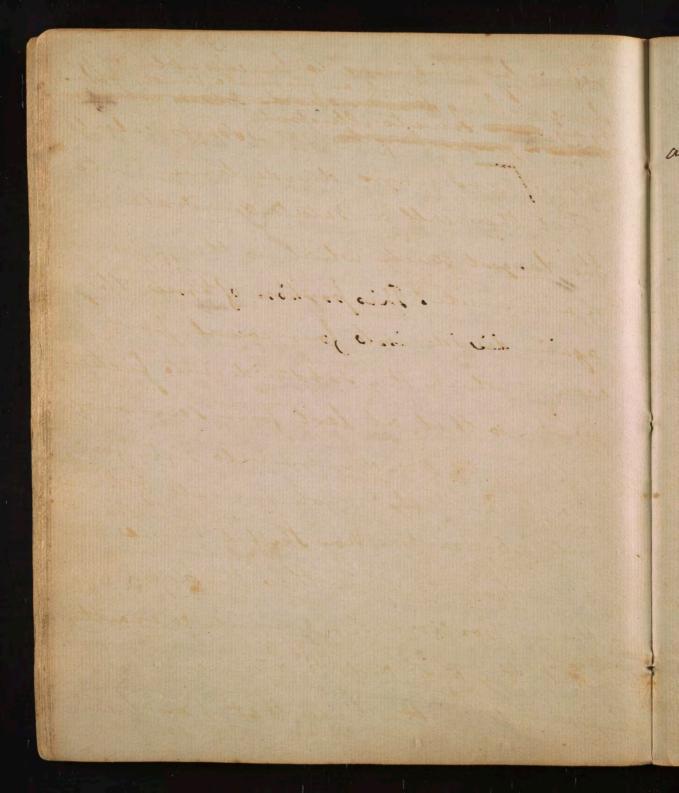


Insumer in Birds who the small, my donate mora donato emit Sounds which are far greater than the Sounds comitted by a larger Line; wow many aminals of a larger Line; wow Birds we said formerly wortain nour. - voirs of air but only in their hungs, but in little cells which are connected with Thur, as also in their very bones and feathers, which they employ, is not only in Respiration but in binging There is another incumstance puntiar to the organs which compose the voice of Birds which diserves to be noticed. This age which is members of which is membersons a double glottis - the leve wis placed of the bottom of the trachie - the of the laryny.

The frangement in form of the De Uvice being formed upon the principles of a wind instrument that not only the braman voice but human Speech may be initated by andeho; note this we know is produced by the severburation of sound only & to is no ways influenced by any thing analogous anghars in favor of this opinion is

derived from the influence of centain diseases Upon the voice. an abself in the frontal fines in particular has been known to under the brice dull - non could it be used till the enatter of this abself was discharged of the enatter of this

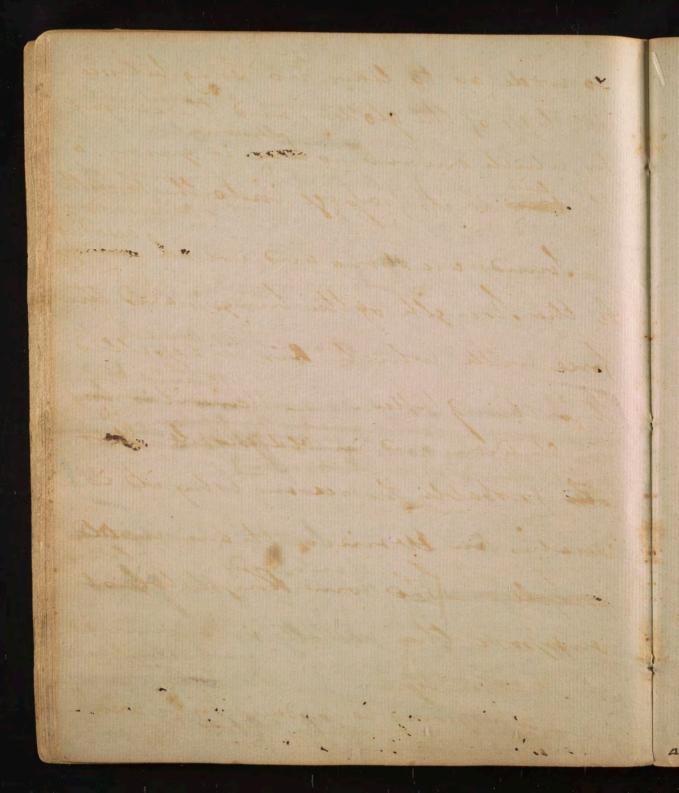
This Structure is happiles culculated to 189. Sound, and to supply the absence those sonnding bodies which are to be met with in the heads of men, and many other animals.) I Having enentioned the arguments which ender it probable that he the Voice is produced by the discharge of dir this the glottis, I go on to the banety of tones which me are observable in the boin depends wholly upon the Vanity of anotions in the Alottis. _ on Dodant in the menins of the Royal academy of Times computes these motions to a. = sevent to 96.32. - This Bumber would be incredible did we not know that the eax has in some fases been so far



refined by music as to be capable of Jis tinguishing being but an insmuse variety boloms and the strate of more Dodust's calcula--tion of musiciono divide time into what they call a Batuta quadrata on the largest touch which is the 15 part of a entruite. This portion of time they again die ide into four equal parts, each of which they Subdivide into fisteen parts, so that at last four seconds of a minute are divided into sixty four parts, and the whole minute of time into 960 parts. Now Thilful musicians know how to seem this the 64 parts of the 15 portion of a minute so exactly, that they are able to distinguish each particle of the time that has been

Voluments are aun'to I grave awording to the greater or less Contraction, or expansion, clongation or thortming of the glottio. In uttering of aunte and grave founds, the =

mentioned, overy one of which is produced by the a different action in the museles which prove the glottis. But the mintees & celesity of the constrours of westerne of acute in emitting tomis beyond this Observation the glottis go for beyond this Observation and peruption of Tounds are divided into aute jains grave, and into strong and weak. V. The asents Lands and for the state of the granter of the glother of the grant of the glother of Noice is some times lost - this depends of wenter Joines allthis in the former case upon the glottes the Sound altogether - In the there it depends upon the Glottis spanding



to wide as to leave no vising between the light of the glotters, and the Laryout - by which encouns no the is given to the month. The win in its papage into the month. Sounds are strong and we all meding to the Strength of the brings, and the force with which his is expelled thro the glottis. _ Mene it is weak in Children and in Old gropsle. Instably the resson why it is men. weater in Women than in bld fresto - The some Physiologists suppose the geottis to be more contracto in ment an expulsion of the Dir as to produce mome

The trachoa is blongated & Phortund
with the quater or less length of the
tonisse. The exercise of the trachea, &

glottis in higing are more fatiguing than
in Speich In Singing base, the peritonium
in Speich In Singing base, the peritonium
is very much protocod, & relaxed,
and
theree the frequency of preplaces to
the belies who are great singers
of fat armany the months in Catholic
Countries?

of those tremos in the Languag - Bones of the anouth - was - and head which produce de a distinct Voice " to the town to the These tremors are perceptable by plains the hand on the to head of a person who is speaking the with a district voice, but they are wholly imperperpetable if he speaks only in a whisper Singing is the postraction of the to granden to produce . The trimors produced by hinging are so great as to be diffused this the whole body - 10 much en, that persons of nice prougstions have declared that they have felt them in the bones of the estructies. The voice changes in men at

If is lihewise varied by the bacather. The. notes of the nightingale are always strictest in the mounth of may . The human voriefuls the influence of the Virmal Sun tho in left of the print of the Virmal Sun tho in left of the Different pains the Different pains the live - home 2 + poices is in part in the time - home love find men of the same country & family have frequently the same les hind of Troices. There is a case upon news by a german author of the Name of Shelbramener of aboy who by being but up among I wine contracted their Voice to exactly in Speaking, that it could with difficulty be distinguished from it. The citizens of the different thatis of america bray all be Dis. - tinguished by a Jamenes & seculiarity of the pupage of the worke the bross the bross the bould be very & perfect when

194 magnitude de at puberty because from an evenuse of trungth the dayone be nose the formation of the bones which affirst in the formation of the bones which affirst in the formation of the bones which affirst in the formation of the bones which and modernly become at the age of the publisty. inequality of the growth of the budy at this period, I shall say hereafter is a Source of many diseases. The Voice is much varied by the Rapions. It is quille and strong in anyer-- weak and planetive in distress - soft in love of slow in supplication - all these Changes are produced by a difference inthe contraction of the glottis. * 2 & The summent verses is epuntial driving it, the bone is Detroyed a breaking

the hose is Obstructed, we are said to speak Speak this the hose the below

Led he replaining the Batme of course of bout I must not just to prention that there are so to be ment who speak from this Itomach's insteps of their hugge culled ventrilegue. The line Lungo. This is a direption. The line # The modifications of the voice depend on the fire of the glothis the business And the length of the haches & Constant of the sound of the so The Voice is thought in aftending than in a ditting posture. This is so much the case that it may be sereined in a Eorgugation when they rise to do Jing the Dotology It is improved by certain to distantistion - from more existent from the Homach preping up the thorax lessing this Coparity for air out of which the

or paralysis of this new is the most frequent carrier of Paropshonia - & apshonia as we shall say hereafter . Thus for home I end sevened to amount for the lovice. But in worsiding the functions of the human body our inquires. must not stop hire. - a brice alone walls give man no presminence above many Other animals. It is by the division of this voice by means of a many thousand motions the total into what is culled Spellet that man arguines a rank in the Scale of bring more Trigular and unequivocal than that for in the exenise of this growth very

of the voice without laking Entire of the provision made to prevents its excep regimens the languages Bruin, and Ufat is the Thyrod gland. By opening to arteries if prevents the Replace of the Language & an upone quantity of blood being fent to y brains which we hollow, or spooch very lound or for a great length of time. That this is the case # V 1: That its is surpor there can be no specel, where Respiration is not voluntary. 2. Speech is formed principally as for as the Sachea contributes to it by the flottis. It the harden on Laryer be cut be below the glothis - there will be wither voice nor Speech - Il above, - the glottis, there will too voice, but no Speech, which It is sendend more entain by those Dringals which have no Voice howing no Thyroid gland. This Ing It wanter stone is the case of the while - but Curida Jap - is not to in the Dolphin Leal. James bill the Comps: and: p: 278. tress rues

ven him, but in the exercise of Speech he stands alova . - I exclude here the honds which certain bisds haire been toright to letter from my ideas of Spuch. - They are wholly unconnected with was, and are as truly michanical as any of the antic enstrons which have been taught to dumb animals. I begin my by the Speech by minashing. That it is wholly unitative and that if Children were not taught a language of some kind, they would bute foresto convey their ideas like or bente jaminals, entirely by higher or indasti ulati Sonnds! ## However himplethe function of

cooker som proud the thoughourd gland served the fruither prespose of assisting the importion of the Hoss to the brain, was thereby of leforing the Juguerry of copyhalis discours, was founded upon an experiencents well V These organs are the Langue Glothis
palete Should - mouth, - teeth lipp and
nose. Suchal of these paints are prepared
for their offices by being rupp led by Certain pruvious carcisco. # by molomer who found that dose busine Desti from the of this Xue gland. Letterte father the in most have been comme wing take in This experiment, by in many pressons in whom this gland has been Discured thus has been no dimention of in tallet, nor any Other hiscase of the brain. I believe ita for lese is principally

immense difficulty - seldom in lefo than 15 00 18 months . I have known three instances in this city of its not having been arguined as before the 8: year of life. -In delivering the process by by which thildren lamts opean, I shall confine roughly to facts which have been the result of black ations, frade objefts in my over family to as, to the france the the in: : mense nomber of pords which come they should be exercised for that purpose. Extends to the torque I end in the

to prevent the respective of the laggory in long stinging Hyp whing It probably the further those of Jense him in hystical women and thous to protect the brain. but of this more benefter. estrinto p 194

She Hottis are exercised I by crying this because the tight it pain because the tight it pain wisits I glottes in motion, as well as to procure belief from distrifs. - I think I have Observed in one instance the effects of. cropest Child I ever knew spoke Dio: - tinetty before it was 18 months sed. 2 The Language glottis are exercised by Laughing - This lugino carly in life, and is attended awarding to its degrees, with very different dilatationis, and apother Contractions of the Glottis. Purpos the similar solothe mason for languing who pendias a formation of the requisit of speach. leiging about the 5th month. It is

I fee here again-the uses of conjunction langhing de - Bisides promoting Respirado by its means Animal life, they are ments any to the production of Speech.

a slow copyright of the air this the brings altereded with the love of ore plusing formiseles of the V The tongre are exercised about the yth or gth month. Its first sounds are generally clad, - dad, - dad; - hence the origin of the expitted Daddy - It Is appuned to the father . Take notice here the lifes are not exercised in promodning this word. The conscles of the lips legan to be exercised about the g'or 10 month by rettering the Sounds of pass - saps - saps -man - man - man - hence the origin of the epithets - Papa - & mana. - It is surashable that in most of the languages we are acquainted with parents are calledby

V Sometimes Children exercise their lips by playing them, or blowing wind this them in the following mauner. Illere show both + This way name is derived from the latin wood box wire - to denote this meanine in language to be such as that they are a part of the voice, preparatory to Speech. Housomonts are the flesh & myscles of languages, They are all # Speech is further assisted by the growth of the foreteeth, which are generally formed before they are 18 months old be which in every period of life are useful in the formation of Speach. # soft a agreeable in propostion as they about in vowels to see desired of the see of the s The greek of Italian one the most agreeable languages up to the ear upon this aucount. The Jamen - Sundish, Danish & Inglish are the last

Lingual - on 200 names which have some labial letters in English Dadda-Papa - mama to in French in them - as Bother - father ther Pare - mere
Pater in letin - hider & miden in german to the Minimore
Inadre - badre in Ipanish - the Minimore
Thosehin - Juther - & moschin mother in the linguage & By the constant exercise of the museles of which more y glottis -Langust- torgue de lisso in this way, for 18 months or two the years, Child. : sen are prepared to arguise the know. - loge of a language on or articulate Sounds. - It is remarkable that in inarticulate which I have mentioned, we find some of the vowels- for these are the Sheleton of all languages ? Language or words are acquired by Children only by imitation. The car and the eye are the avenues thro which the Use of Speech is conviged

= There is one of the Consonants to by its ungraliful effects upon the car but the letter R. Hat is the letter R. a long of a german for of the varne of Lessting who was taught the letters of the alphabet by placing his hand upon his wife's month & discouring. the exact motions of which accompanied hupowning every letter . upon his monorining the letter R - a fense of honor his whole frame. The would freen there isisted material antipally to this letter in the human car is hence it sellow occurs in the languages of the holi was not the Upricans Thom the latter, the inhabitants of Countries in which regrollavery exists have harried to leave out the letter R

to them . after children have brought forward to their parents' suppled by the exemises with I have mentioned, to their franch, they endeavour to imitate them in the pronunciation of single words. These words are always at prist betantive Oromo . - In their first attempts they or words analu many emistales - the Sounds they wither are often as widely different as they can be from the words they are desired to ester, * But their little ears inform them of their mistates and they attempt to correct them. - Their I weep affords them exquisite delight, and if they repeat the loved

in enoct of the English words in which the words Summer - hance we have for fine - district to form Winter - paper - Dinner - Supper - Sean

I fire from poroco of the best charting Mathematical sies & sies of the Samuel Land Summa - Winth - papa - Dinna-Suppa - been and fix - by persons of the first rank in these Countries. have crept into their language. & spronte side.

and the same

they hit upon half a doren times, they sildom forget it - but if they do not, they often lope it - and sometimes do not recover it for two or three months. - If Children san make you understand what they mean, when they call any thing by a false name, they will Ichon take much pains to correct it. - I have known a Child call a Chariot a tare - & Sugar, Billy - long lefter hound pronounce dialy the boods in our language merely busines his parents consented to know what he meant by them. for acquiring a language Child: - un are much apisted by looking the persons in the face letro Uprah to them. - They arguine in this way to much Lower and the pronunciation

I They liherise acquire hords mulh sos= when they are only spoken twoods thins, when they are only spoken twoods thins, -parried with pleasure, are more pains are taken to retain them. It has been said that ideas were existed conversally assess in emissical tones, and that language lost its tones by the habits & pleasures of civilized life. It is certain all Javages are found of music, that they express this passions in musical tones, & that even their to the voices are thinged with them - timble, but ex--tremely plaintine , & melancholy - a proof mentioned, that they are uniformly to miserable. To return.

by the motion of the lips. I for this Ildom would at first - wenthere the extensot pains have been taken by parents to prevent their being opohen. to in a Childish brances. _ Those loods in our language which have the the letters the - connected in them as this - that the be one always learned with a great deal of difficulty. horeigness seldom Speech liter perfectly arguined by imitation, but its pendiarities are influenced by it - hence whole come town town - I schools have been are arguind christly with 12 years of

V will illustrate what for mean by each of those distinctions of Journels in different languages. a. and O. and gultural the Band P module labial the . C will the dental the Land R or lingual the dental the Land R or lingual the land R or linguage land R o

age. after that period the muscles in: more the organs of Speech are less easily affected by insitation. I exclude here those pendianties of Speech which are acquired by affectation. These are picked of up at every seried of life. Languages differ from each in the different proportions words which tongue teth dipsohone are uttered by the throat - exclusive of each other. Hence some languages Deutal de labial acording is the thinat tingue or life predominate in each of them. The following letters of the alphabet Indolence has a great influence upon Speech. Hence we find the fumest Imuseles employed in the languages of Januages who are all indolent. The

If for the pronunciation of Consonants lavity of the Union - tongue - consultation of Consonants the Union of the Hebrews teeth, are all employed. - to The Hebrews early Blowned this, and have divided this consonants awading as they employed their consonants awading as they employed these different parts into guttural those different parts into guttural palatine - Dental - labial & pasal.

provious in this country use their tongues and lips as little as populle in consensation. Twen in the at public treaties, they gount their apent to what is proposed to them this this throats. I gettural. Indolence has the same offert The plethora of Vorcelo which composes the Italian language seems to have wisen from that cause - for bearings fener museles are employed in pronouncing words that adversaries abound with bowels than Comomonts. The les arabiano who are indolent Som Chrisate & government, use and contraction their longues only,

+ The same as in expressing the emotion of pity.

Marroits of Spush is much influenced by facility in having, & quickrep of perception. - Old men speech Slow - because they hear imperfectly. - It is likewise in : fluences by the greater on less velocity It is rapid in to fever and in the blood. action, also in anger, and it is slow in a fewer in which the circulation is fuble as in the typhus, and in a Depreped flate of the brind. By attending to this remark we may know the State of a patient, Circulation only by hearing him speak; before we fullispulse.

in an affirmative in a peneliar freis of intonations - Describe it . J. + Some of over fellow Citizens Gent.

mention the ftales to which they belong,

What I shall not say to horse) use and affirmative that is uttered with every as little trouble - by throwing the vice against the roof of the month, and this the visco- [discribe it] Thus - have I described the origin - formation - de vaniety of I puch among men. That the ant. I have given you is a just one, I infor from the druces which attended the attempts that have been made to buch the dunle to speak. It was a Spanish mont of the name of Postiers first discovered by the comments and lefter wind being impound by

in him to let him to J. 11. 200 2 21.3 V pusous Dumb, but modicard remarks it would be more proper to call them silent. Whach there to indestand what is said tothern this has been to done , by hacking the persons who are or lent from to observe the exact we have of the language and liges in the prissons who / youch to them, each of which have precise motions for every word they if water. In this way arm.

Several Other Jessons Was 207) serfected by ammanus a Dutchman - a lotemporary of Dr. Boeshaaves - and has since been adopted, but a designation to the information ly a more Braidwind of Rome found by whomes you will find in the has likewise the myslopedia. It has likewise the myslopedia. It has likewise Womilie by mysicard - of humani. desposed art, it will be newpany to who are libin ise deal feet in the organo of Speech. They do not youch busine they cannot bear - and braing is the Line thro which Spoech is chilly arguined. — It is common to call duch the runt to speak, when in teaching

of wheh - stand what is said to them, is to supple hand the lary not of the man The Scholars on their = texp, and to beserve the coast tremen letter or motions which aurmpany every, be tetters with words whitten 1 menony by him. The master I show of his lips in Speaking .. after the exact # 13: - bae would hint to that his lips, and at the same time to expel the air fromibly from the bings - on suppose the should him to pronounce the word paper 11

the Lungar & to truck them to expelite thro it so us to exite an inasticulate Sound. The language is suppled by frequents = by preping it. The sand this the I to sepo de to the month in the in wir it is muspany to give the trangere I lips in every word in a language,
the master motor directstant
his selloter those motions in the instant their expulsion of the air from the wished hims. - & g. Inpopose the wished letter to him to pronounce the to Il lessenting would order him fine expel the dis from his lungs truo different times in a grich Surapion. During the frist time - the would tell the leth of his lower law, be to the

In this way Dr Waller letts us amendmens turnght a buy to youk and - and lorete in one month, and a Girl in two worths, but in general, it reguired a whole year to wruplite the chreation of a Droval or riterat person in the manner of howevertiened. But ameners not only tright the Dent to youk, but from his aurusate of all the motions in the organs of Speech which take place in the pronoun. = ciation of words, he cometre fatse Direction aboy who us a the lettersty and led) instead of (k) location to Depres the to prevent the its by yspir teeth. - Ofter a while he was able to Depulp his tongwarfaren the interior his will arguined over it.

close his ligs together at the same Instant - this would produce the Inflable pa - The the 2nd time he expelled the hir from his lange, sup: the moster tett him to raise his tongue towards the roof of his month and at the same instant to close his lips - the Syllable ultered would be- per - which are connected is: pa - would be to paper. By attending to this proceed Jewill a little boy of wing W Sor V in the wind of the sort of the wind of the wind of the line. agreeably to the william mode of leganting which specialists on partired by some of the Citizens of the little on the lightest of him the lights upper jaw of directed to prefo him the teeth, upon

are imperfectly pronounced from the ligement V Some words Of the longue was ding to not being cut in early life. I have in several in - Hances se and these imperfections of Speech by culting this ligament where it has been of a preturatural length. Speech is impained not only by the lop of the foreleeth, but by their protosnaturalfire, and projecting in Christers instead of years from the the upper blower jaws. This defect in Speech has been cometed by removing some of the tell , or opening moderate apertures between them, or reducing their length by menns of a files.

his lower lip every to time he attempted to pronounce these looks.

- They came forthe truegar. I that
with there proper sailed thrishment be delight.

V Dumber tilent Dumb or Silenty lessons who have taught to speak in the enanner have desire are frequently able to hold a conventions
orthy by the Lips of the pressons with whom they conversed. I humanus repeat what he said, taught a man to sondy by directing town to more his lips as he moved his, and at the same time to expel his from his lungs offe to hear with his eyes, taught a long so perfectly in this list is lived, I'll may healtoned the expulsion) take down way, that he would after many

V tis recorded Han Boeshaare the nighter of the imprepions upon his ears this the mirium of his hands be feet. This was a translation of a Venoe, of which I shall speak mozie fully here after.

in writing a fermion, and afterwards and it word for loved to his friends when he went home. The auteness of peruption in the eyes in these Janes goes almost beyond Conception. It is popible they may perceive some of those tremore and before Ipon of which are committed to the pead in spenking, for each wood the show in south has its pendias and Sperific tremos or Vibration. Thousand this be the case, it would not un. - give more accente fight - that was dis: - covered bearing in the two Duttons whose history you will find in the tutures upon animal life. V I shall have oursion to

V for explaining the mature of Speech, of must not omit to mention that are men called bentilogui who are said to speak from their Homaelis. Unis is altogether a deception. The Specch is formed by the inspiration instead of the expiration of Ceir, and the Horis & Speech are in the lungs Int in the Stomach I shall assume this Julyat when I come to treat of Sound. gift to exercise for reviewing the wonderful for the of Smuch, and it is improprible not to be struck with the humberl exility of those motions in the larynny Glottis - tongue - & lifes stores by which it is performed. The highiste Innguage consists of 40,000 words, evearly every one of which is attend by a neotions in the above organo different

resume this deligent when we come to book mention the discover Cases of enorbid boise and Spush in our pathology - when I shall explain dome matters which they would be foreign to a lecture on Physiology. mention the use of Speciel But here gent. I am less at a loss what to say thun what to leave unsaid I I shall however only Brutes are stationing in their knowledge impact bucuse all the creations in the world. - It they have sign speech of Speech that the remeable Hage instructed the his Children before the invention of writing deprinting -- By the Use of this function we carry on the lisiness of the bould - we It is the in an inge is

from each the Other. This will not he ineredible to you when you recollect the vientier dexility of Joined which of mentioned at our last leture, and which are districtly freeined by a good russical lar. - But our wonder should not cease here. we meet with persons who speak, with the latin & greek tout most of the modern languages of hurope. The distinct in the organs of Speech of thise persons probably amount to many hundred thousand, I are all at the same time to perfectly correct as to convey in an instant prices ideas to the persons who understand them. I beg you would remember these facts. I shall have occasion to apply them notine & opinations of the homen mind.

Christy wowinged from man to man - It is the besides wehicle of cloquence - of friendship - and love. - our But above all - it is the means by which we may more commanded the great ch father of the Universe, and to colderate his books among the Children of men. ONT Boyle we are told made it a practice always to make a charact pouse in convenation when he Being - Did we continued to fully all that is known of the wonderful manner in which the voice and Speech are formed, ive should go beyond mor Boyle in our homage to the Deity . - bes many time we intland a love, that conveyed an idea · to a friend, or to the public, we should

remains now that I mention the Uses of Speule. By it, man is unbled above all the Creatures in the world. Brutes are Stationary in this knowledge Chiefly because they are protest Destitute of this previous gift of he owen. There is no Speech those can be lent fun there was to be lent fun ideas, for words are soid to be of Dead. How west the the Mutho. of idea, and without this ideas soon perioli in the mind the wing expecha to atach to a to the same Discriminations of mare, has been supposed to be the result of the gradual & Juccepine operations of human resour. I cannot apent to this opinion. That Speech lyper sed upon this Cause, I believe at this day we

pause to admire the more fort windown andritut in the Hometure of the Organs Je by which that book was pronounced! Lect: 9th go on to 1 216 I have not get lost light of the human figure whom I funcion I first met with on a visit to our globe. after unveying the manner in which the motions of his briest were performed in Respire.

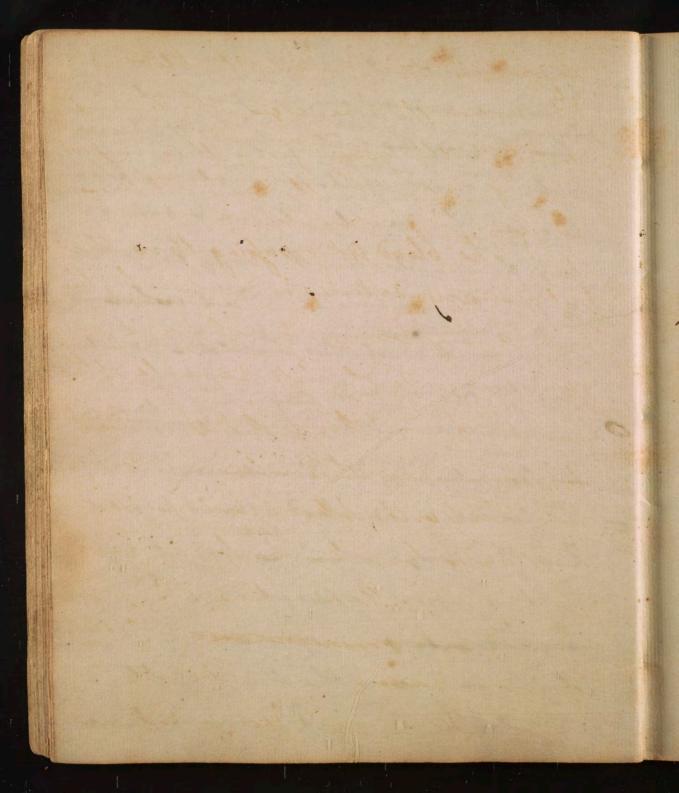
I was led to enquiringisto the more mirrolly into the vous of those motions ing his to he utters bour & Speech. I which he sport he sport he sports he sports satisfied myself of the course & manner of each of them, I was next ment led to inquire into the erature of those wardendary motions which

Thouth have been but little above oris Donnes tax asserials in our attainments knowledge of it. There can be no doubt but Speech was originally given by the owner divine power which multiplied languiges at Babel, and which my in after ages in : = parted to the twelve apostes the lift of languages, and that our great progresitor Spoke and of them no certainly as that he breathed or walked, for the historium that relates the one, relates the Others. The posterity of Druns arguined Spush and language only by instruction & imitation, As they have Jone the knowledge of a thousand other things. Our futhers have been to us what the Creation was to adures. The only difference in the manner of our hurning to speak is, we require 14 mouths, or two years to learn

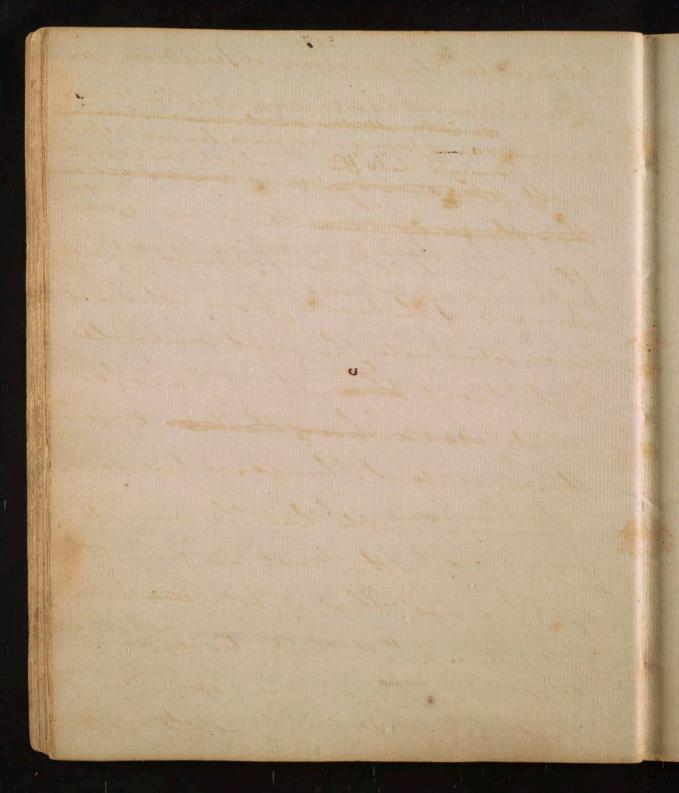
lay beyond the reach of the eye light, particularly isto the motion of the boat of which he spoke frequently heart I famile they in edisinibing Respiration. - Feelhere Sand he __ upon this, I imagined he placed my hand on his breast. Beneath it, I felt a strong pulsation. - This Said he is the heart. It has hear 5000 in an hour without one moments reporte, - It is the fountain of life - a forme Lifere of mysteries - all the functions of the body depind more or less upon it - It moves the brain, and is again moved by it - It famishes the fluid from which all the Lessetions

To speak perfetty, Whereas adam was Disjoiety to speak perfetty in a four hours, or perhaps in an instant, the Having toursel described the function & uses of Respiration, more especially its apossication to begin un Voice I speech, we proceed west to treat of the next effect of the inplation of the blood. and had it the circulation of the blood. and here I shall first inquire into = p:216 in a second contract

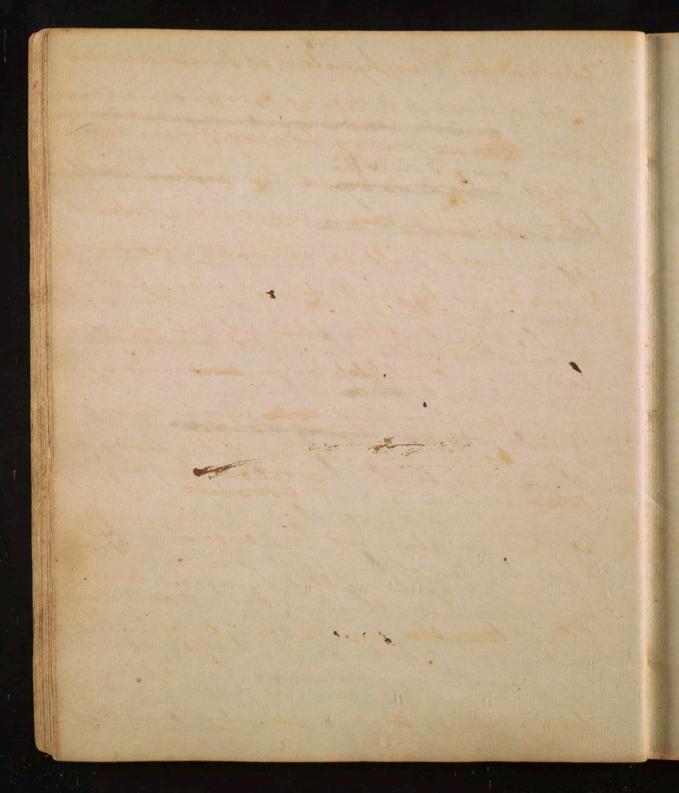
of the body are obtained, - in thost its Inesence, and action are spential to has life in the right only in the human but in most of the animals in the to ordo. The prichly Thy dra & one or two animals are the only exceptions to this Ofservation. _ But inhat is the Stapedure of this hours on delive. Fing the sest of the information derived in ways but in this to shall, consider the be action of the boart inguiseinto = the course of the blood afterit paper this the lungs when by left it in breating upon Responation . 2 Thate describe jour puntianities in the Structure of the heart & blood Quepels. 3 I shall inquire into



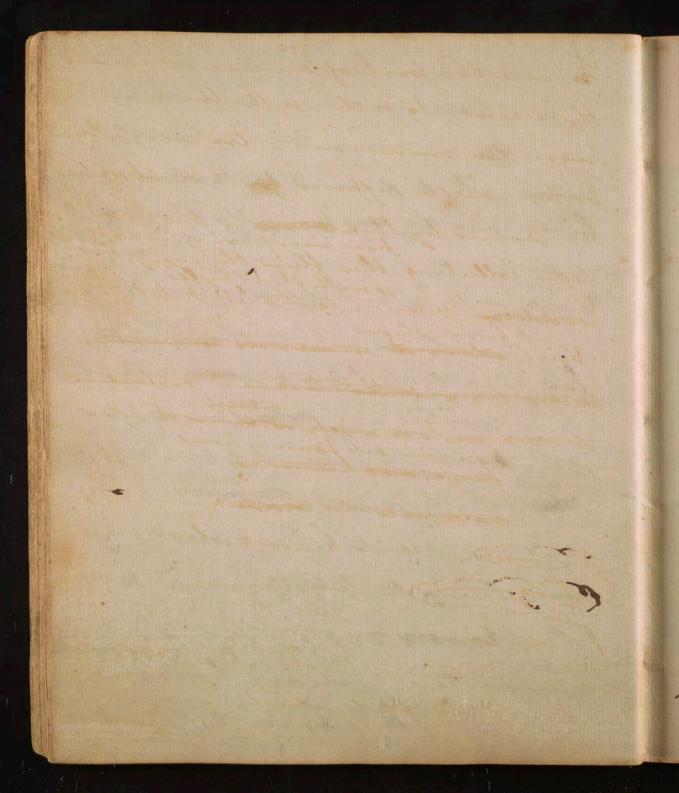
the powers which were the blood, and 4 mention the arountages which are derived to the lystem from this important function in the animal Ouomony, I The blood after paping this the pulmonary arteries is were oby the pulmonary beins, by which it is conveyed into the left ansacle of the heart - from Whence it papes into the left wentircle this which it papes into the alasta, which conveys it by numerous branches into every part of the body. The blood thus distributed this the body, or somption whether discharged into immediately into come tiquous & connected Ucins - or into



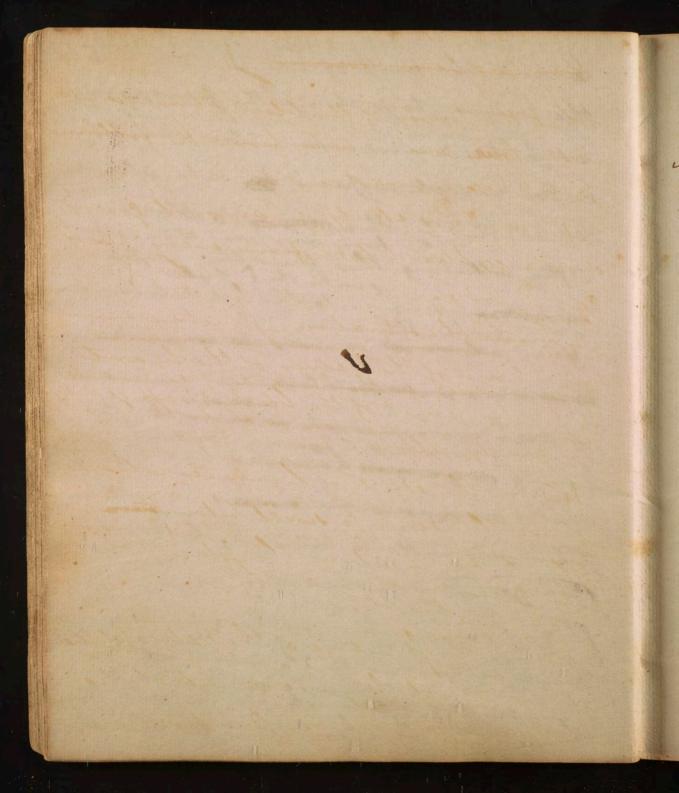
Hands for the purpose of Secretion - on into caresmons helstances, as the corposa caresmosame penis - or into Serons befrels, in all about the which meet in is all about the being being this the boxes the vena Cara this which it is poursed into the right arracle of the heart, from whence it is empthed into the right ventirele of the heart the which frais for : merly att the obligation to it was thrown into the lungo in Respiration It is remarkable that the arracles I wentricles of the heart are perfectly synchronous - that is, both to a armaly contract, and both bentricles expand at the same time. The expansion of the heart is called its Dinstole - its



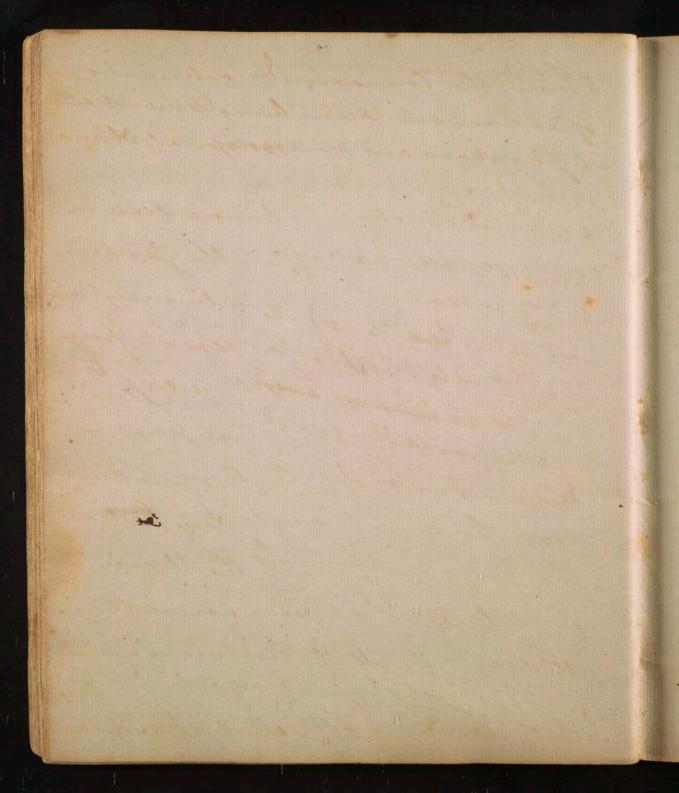
Contraction is Systole. It is computed of zig of blood are discharged from the heart & in every Contraction. The valves - which prevent the reflect of the felvod into the was annales & vintoriles of the heart will be assentely dismonsti: & explained by the Rofefor of anatomy. - That part of the blood which is exha-: led in a coulonless from, and into ur: : tim cavities and at upon most of the enternal Infaces of the body, is Eleins, is absorbed by a second hys: - tem of respels called Lymphatics. These between banety of unful purposes to be explained hereafter, but one of is evidently to act as



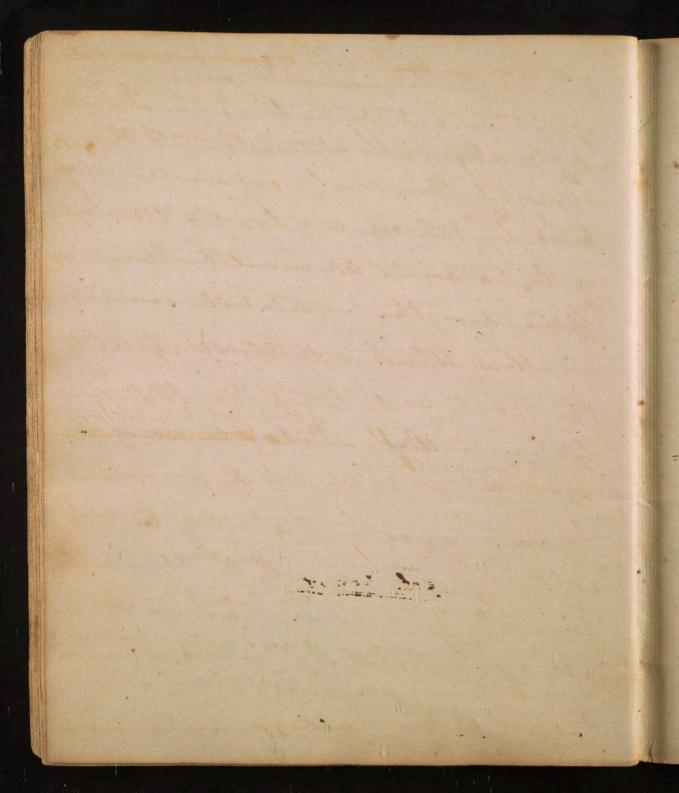
were the part of an hand maid to the biens, to pich up the fluids which were too munerous - too weighty or too much diffused, to be absorbed or carried by them wery part of the body, after collecting this fluid the Lymphatics it with the Nohyle belowian from whener Win Whine birth day and rates in having profession between by a different vont) oboists the mosenters to with its hindred blood into The beian of the heart. 12 Leone non how to mention forme puntiasities in the Hereture of the heart & blood leefsels which favour the Cirentation of the blood in the manner



that has been described. That the Course of the blood of have described in the true one, I info from the following forts & experiments. I from the effects of homorrhages who discharge blood alike from every part of the body. of the body. 2 From the Situation - Structure - and functions of the Values of the heart, which admit of the blood's papageouly in one discetion. If From the effects of ligatures which cause the being to swell below them, & the articles above the place where they are applied. 3 Inour the structure of the Valves of the being which libewire admit of the blod i papage only in One direction.



5 Iron the Connexion & Continuation of arturies and being being demonstrated by injections and microscopical Observan & From the effects of tying a vein in a living animal near the Cava, or from tying are of the pulmonary Vins The part which is most remote from the heart in either of these exp. al. ways swells, while that part wi is meanest the heart burnes flacied. How a corresponding artery be tied at the same time with the Vins, the beins become empty, non do they. fill again Untill the ligature is removed Jour the artery. I Heartly from the effects of transferious



in which the blood good becount is conveyed from the arteries of one animal into the bins of another its blood, by which means the bloodleples of the exhaustro animal are completely filled, and the Circulation carried on this them with Vigor & regularity. It of come now to mention some free.

lianities intheftructure of the finite structure of the true of the blood befores which favour the liverelation of the blood in the man. ner that has been described.

1 The position of the beart in the Thorax where it is geneed by a bony case on every live greatly favours its free & confiant dation.

V & It is the redist muscle in the body in all animals that have red blood. # It beats mean 5,000 strokes in an hour, and during the longest life, knows no intervals of rest. It moves the brain, & is again moved by it. It proves is chiefly motonmental in conveying to that fluid to every past of the body from which all the Sceretions are Obtained. Its presence beits action me mufsary to life, not only in man, but in most Ither animals. The prickly Hydra, and one or two more arrivals are the only exceptions to this Observation. The fire of the limit is generally in pro:

I Its internal covering called Priceadium while its process (fiven the vapor on water which it conftantly contains) the more easy action of the heart, serves to defend it from the compression of effessed fluids in the thorap. -.3 The so Cardine bienes are account.
- panied by the artery which Supplied. the heart with blood. now this artery I to the hours of the heart by husing up tension. If the heart is evidently a hollow with some ligamentons parts, but muscle, some properties of all the properties of muscular fibres in every other part of the body . _ V I have the formation of the dust, it

The trength of an arrival. two It possess two ansacles and benticles in the humanispecies and in all animals that breath o like him a bu whale, and in amphibitions Animals it has two ansailes & one Vereticle It has one Ventricle and averagle in fish others has but to a single Carity in the testaceast in Inserts, and If identifies itself with a kind of Anterial Canal in worms a some inserts a it disappears in the polypusa restain Zoupshutes. I It is remarkable that the right Ventricle continues to beat longer by deminal strokes in a dying arrival than the left. 10 7 Its cavity more initable than its external Inface. In frogo tertles & sweral Other aminals it setamo its porcess of being actionson a day or two after death. Its finsibility is no means aninflamed, that is felt is were when discosed the pain is Jull- This rather of mainty of the pain forms that the

I de popular popular promite degree of providet of thimula bility the owney. profes dying pinon, or even in a person lately dead, the heart may be exerted into cretion by the forthe stimulus of water or air injuted or inflated into it - soon by heat - certain Vapors, the most initable prusele in the body: The following puntimities with respect to the arteries deserve our notice, and ME COUNTY OF THE CONTRACT OF THE COUNTY OF T 1 Their louts - The external is ullular - bassid too monden to the internal is a fine polished hebstance intended probably for as acovering

N p. 225 the want of Sensilistite in a healthy state south has been movedby In Tlumer by many facts par - triularly by the history of a young nobleman who when a boy frastrus his ribs on his left lide. I tropper a trou ensued which produced an oppermente of the motion of the that exposed the motion of the heart. It Harvey mefred this

Inembiane I The heart with it, and without giving the least pain. The conducted his patient to king Charles who do the libraries total Did the same thing, and with a similar ifone to the exp:

beart is more initatile in the influence than in the grown of the first the influence of the first from babit, the influence to from habit, to by Dr. Berkley. /11 To all these facts I shall add one more Communicated to me by In alex Rams ay me imment broatomist from Din how in the District of Indine. The says he has uniformly found the left Ventricle of the heart larger thin all the americans he had difected than in Enropeans of

to the middle which is more obviously a min of the artery. This cout is of to compact a nature, and so much more like a brembrane or allows an expansion of tendon, that Dr Haller & Drive Sounter have both denied it that that bit popopes that time lability which belongs to enrecular fibee in other parts of the body. This question thall be controuested in its propos place . In the mean while I shall only at addy. I shall adjuste maintain an opinion contrary to both those Physiologists & perhaps I may prove that De Haller in spite of his objections to it, has in: -directly apented to it.

V This simple Elasticity is greater near the heart than in this extremities. - Anter Dyposes the Heat of Elestic power is in the external, I - of the enviscular in the internal wat of the astry. I The heart and the arteries are synchrogrous in this pulsations - that is they to the feet at the same instant. - ion of the buse of the heart - dilatation forms the pulse of The astry.

2 all the astiries have never and blood Repels - Their blowvefsels are called Vasa Vasoriens. They come from mightwring Reteries dight from with lyposphatics inchemical 3 the listeries propells great inchemical elasticity. This is evident from the pressure which the a small perio of the Osting of a Dead animal makes upon the finger! This implestantinte Dead anithe first the "heart acting upon it, the last by means of each diestole of the heart that constitutes the Jule. A. - It is common to all the arteries, but infranceptable in the maller ones, except in cases of inflammation

